

## CATHODE MATERIAL FOR LITHIUM RECHARGEABLE BATTERIES

## ABSTRACT OF THE DISCLOSURE

A crystal which can be employed as the active material of a lithium-based battery has an empirical formula of  $\text{Li}_{x_1}\text{A}_2\text{Ni}_{1-y-z}\text{Co}_y\text{B}_z\text{O}_a$ , wherein “ $x_1$ ” is greater than 5 about 0.1 and equal to or less than about 1.3, “ $x_2$ ,” “ $y$ ” and “ $z$ ” each is greater than about 0.0 and equal to or less than about 0.2, “ $a$ ” is greater than about 1.5 and less than about 2.1, “ $A$ ” is at least one element selected from the group consisting of barium, magnesium, calcium and strontium and “ $B$ ” is at least one element selected from the group consisting of boron, aluminum, gallium, manganese, titanium, vanadium and zirconium. A method includes combining lithium, nickel, cobalt and at least one 10 element “ $A$ ” selected from the group consisting of barium, magnesium, calcium and strontium, has at least one element “ $B$ ” selected from the group consisting of boron, aluminum, gallium, manganese, titanium, vanadium and zirconium, in the presence of oxygen, wherein the combined components have the relative ratio of  $\text{Li}_{x_1}:\text{A}_{x_2}:\text{Ni}_{1-y-z}:\text{Co}_y\text{B}_z$ , wherein “ $x_1$ ,” “ $x_2$ ,” “ $y$ ” and “ $z$ ” have the values given for the empirical 15 formula shown above.